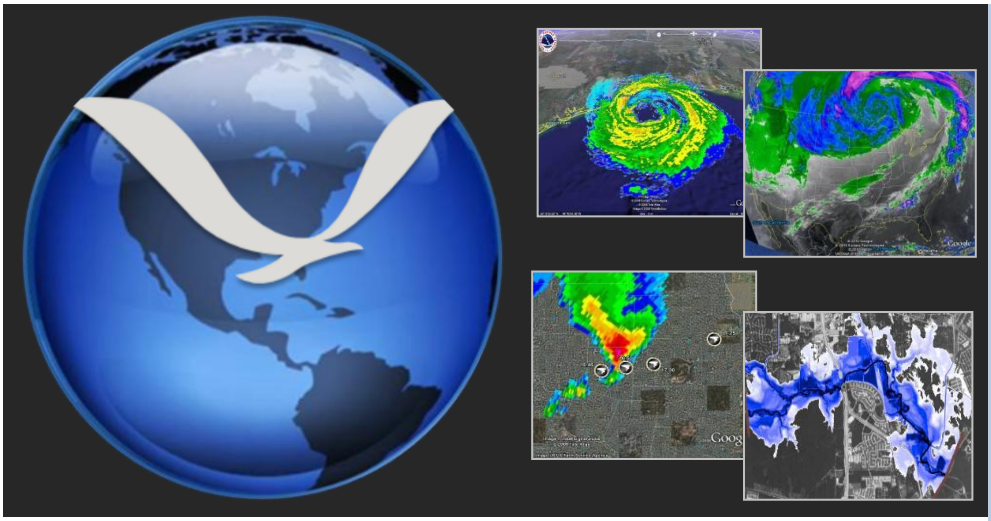
NWS Geospatial News

Fall 2011 Issue

Your source for sharing geospatial news, projects, and activities across the National Weather Service



Topics in this issue:

Message from the Editor

Welcome to the Fall 2011 edition of our newsletter! Please help us to share the news about geospatial projects or activities going on throughout NOAA. We encourage those interested to submit articles on any projects that you have developed or studies that you have conducted at your office. Please tell us about any GIS conferences and/or outreach activities that you have taken part in as well. We would like to promote these projects and activities to showcase what your office has accomplished.

Sharing of this information will also help increase our agency's knowledge base and allow us to leverage our GIS tools to their fullest potential! Therefore, I encourage you to email your project and/or outreach submissions to the editor (darrin.hansing@noaa.gov) for inclusion in our biannual newsletter.

~ Thank you

Geographic Information Systems

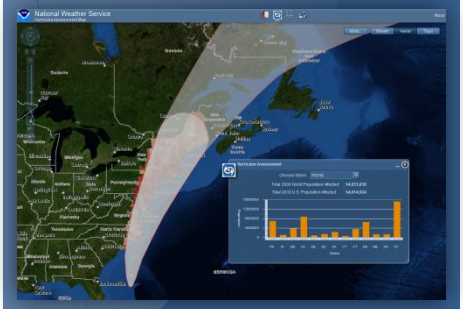
Weather Event Analysis Tool for Estimating Impacted Population

By: Jack Settelmaier – NWS Southern Region Headquarters

The National Weather Service Southern Region Headquarters is experimenting with developing useful ESRI FLEX API-based interfaces. Working through ESRI's Disaster Response Services group, we now have the capability to overlay National Weather Service (NWS) Watch, Warning, and Advisories (WWAs) on an interactive map that will return charts depicting the estimated 2010 population, per state and overall, underneath those areas.

Not only does the interface provide situational awareness of valid WWAs, but it allows for easy way to estimate the impacted population under an upcoming weather-related event, whether that event is a Heat Wave, Tropical Storm/ Hurricane, or Winter Storm.

Links and descriptions of the two experimental, non-operational interfaces residing on the developmental ArcGIS Server machines can be found on the next page.



The first interface is intended for use when Tropical Storm/Hurricane advisories are in effect in the Atlantic Ocean basin. It will show the expected forecast track and its attendant cone of uncertainty, which takes into consideration recent forecast track errors are future forecast hours. Over non-contiguous United States areas, the interface will return an estimate of global population based on a worldwide gridded population density service. Once the cone impacts the contiguous United States, the population estimate will be function of impacted counties and their 2010 Census population.

- http://gisdev.srh.noaa.gov/HurricaneAssessment/HurricaneAssessment/index.html

The second interface displays valid NWS Watches, Warnings, and Advisories. The user then can select a valid WWA, and get a graphical representation of the estimated 2010 United States population within counties that are contained within the user-selected WWA. The interface is set to refresh once a minute to update the WWA display and population estimates displayed in the graph.

- http://gisdev.srh.noaa.gov/NWSWarningApp/index.html

Examples of the output one can produce from the interface, perhaps for including in pre- or post-event reports or for sharing before or during an event via Social Media outlets, are shown and described below.

The first two examples show images depicting heat and heat/drought. Initially, this information was created manually. These show impacted areas and the population from the Summer 2011 Heat Wave, before the interface was created:

- http://www.srh.noaa.gov/rtimages/srh/stsd/Jack/Heat/Jul22_1215pmCDT_NPWPoPStats.png
- http://www.srh.noaa.gov/rtimages/srh/stsd/Jack/Drought/Jul22DroughtHeatPoPStats_1715.png

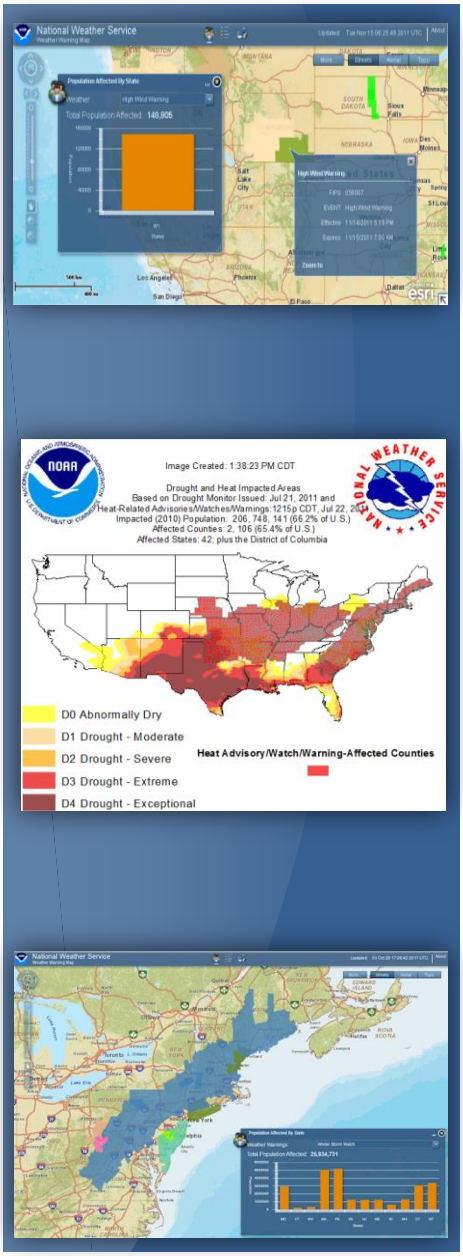
The second example is from Tropical Storm Irene, which uses the interface.

- http://www.srh.noaa.gov/rtimages/srh/stsd/Jack/Irene/Lastest_IrenePoPImpacted.png

The third is the most recent example from an October 2011 early-season snowstorm:

- http://www.srh.noaa.gov/rtimages/srh/stsd/Jack/Cold/Latest_WinterStormWatchPoPImpacted.png

For questions, comments, or suggestions on these interfaces or future ones, please contact Jack Settelmaier (jack.settelmaier@noaa.gov) and Parks Camp (parks.camp@noaa.gov).



Rolling Out NOAA's New GeoPlatform Website

NOAA's GeoPlatform is a website that will provide NOAA customers, partners, and staff members with a centralized platform for discovering and accessing much of NOAA's distributed geospatial data, services, and applications. The GeoPlatform also includes an easy-to-use on-line map and data viewer.

NOAA's GeoPlatform will initially launch in December 2011. After initial launch, the content on the site will continue to grow as the NOAA user community continues to add to it.

What can NOAA's GeoPlatform do for you?

If you are a Manager it can:

- Highlight your program's geospatial activities and resources
- Search for data, services, and applications across all of NOAA
- Quickly and easily visualize data in an easy-to-use online map
- Showcase NOAA strategic priorities such as ocean planning and proposed climate impacts

If you are a GIS user it can:

- Search and discover GIS data, services, and applications across all of NOAA
- Distribute your geospatial information to a broad audience
- Share content internally with other NOAA users
- Develop intelligent mashups (combining data from two or more sources)

The NOAA GeoPlatform site will be used by:

- NOAA employees: Geospatial professionals; managers; policy wonks
- Federal agency partners: Both open-access and protected (firewalled); mission-essential function support
- Advanced users of NOAA data: Governments at all levels; scientific, academic, and research communities; geospatial professionals
- Private-sector and nongovernmental-organization partners: Alternative energy; weather and climate industry; fisheries
- Public: Science-literate; weather geeks; surfers; boaters; ecotourists
- Academia: Educators, students

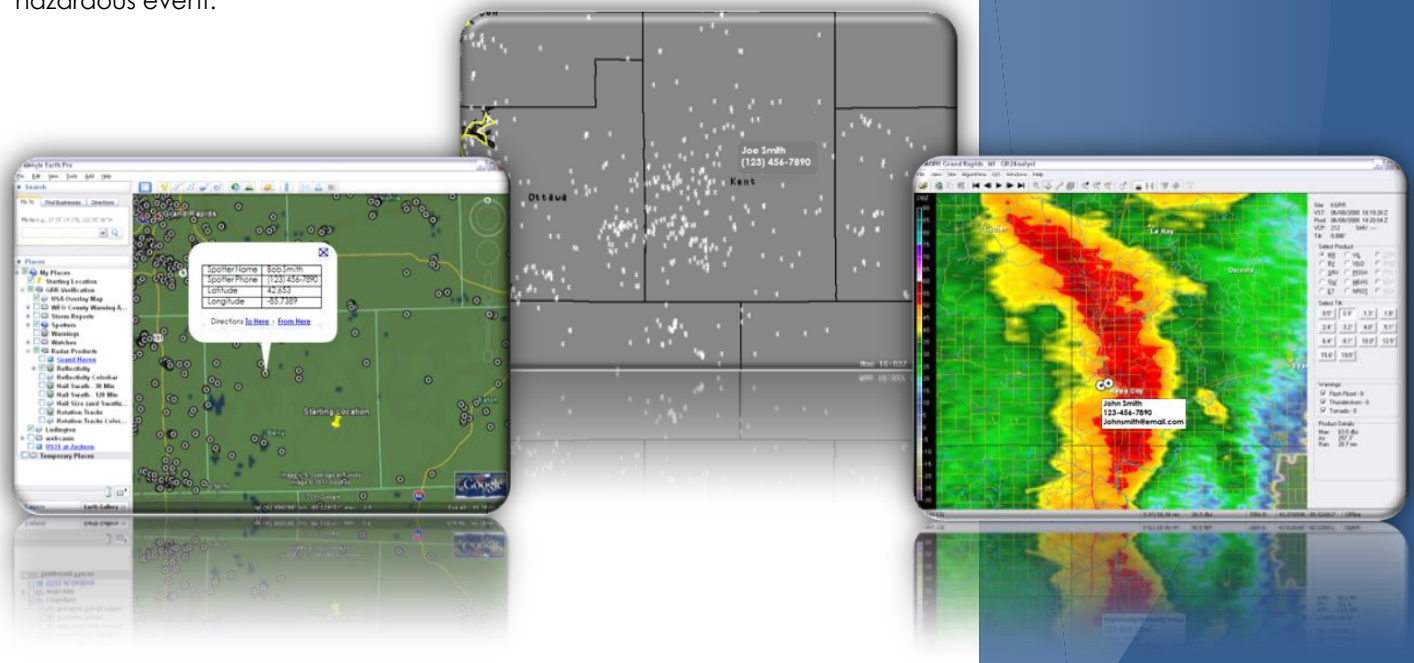
For more information contact Randy.Warren@noaa.gov. Look for the beta release of the website in December with the final release coming in January 2012.

GIS Activities at NWS Grand Rapids

By: T.J. Turnage – WFO Grand Rapids, MI

The Grand Rapids WFO has begun to utilize a python program that takes geocoded spotter data from a spreadsheet and creates KML files for Google Earth (GE), GR2Analyst (GR2) place files, and spotters.dat configuration files (AWIPS files) that allow spotter readout maps to be created in AWIPS. Batch geocoding of spotter data based on address has been documented elsewhere.

Ideally, spotter contact information should be as accessible as possible for real-time reports during a hazardous weather event. This is best done with live radar data on AWIPS, GR2, or GE superimposed with spotter location maps and contact information that can be sampled at each icon marking the spotter's location. It also is possible to load archived data on GR2 (and also the WES), which makes it possible to target spotters for verification reports after the hazardous event.



Information sharing from the North Dakota GIS Users Conference

By: Michael Lukes – WFO Grand Forks, ND

In October, I had the opportunity to attend the annual North Dakota GIS Users Conference in Grand Forks. It was a three day gathering of GIS users sharing their stories. It consisted of keynote speakers, presentation and poster sessions, workshops, and vender displays. The major themes were GIS in Emergency Management, water issues, flooding and local use. The presentations from the conference can be viewed at: www.nd.gov/gis/news/2011-conference.html.

Some of the things I brought back with me were:

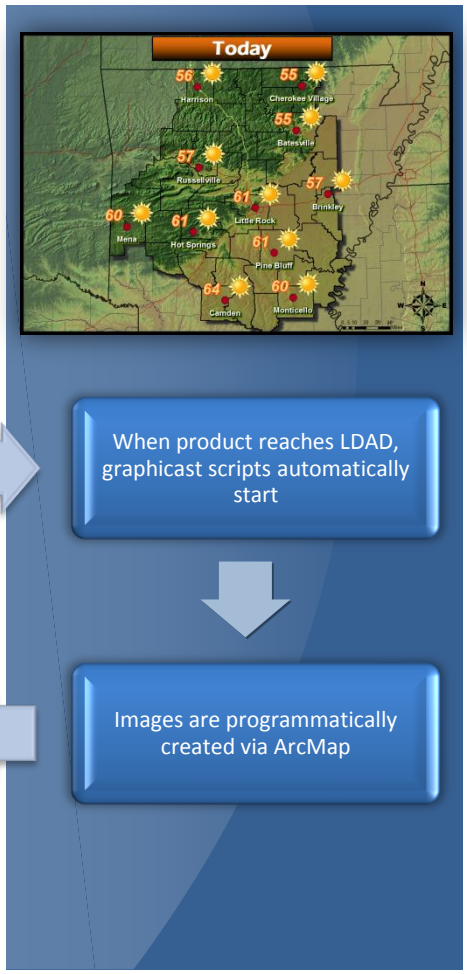
- The North Dakota GIS Hub (www.nd.gov/gis/) is healthy and growing.
- Up-to-date, regional LIDAR data is readily available thru the ND State Water Commission and the International Water Institute.
- One license for ESRI's ArcMobile application comes with ArcGIS. It is more intuitive and easier to use than ArcPad and will run on Microsoft Windows and Apple iOS. Soon it will also run on Android devices.
- Due to record flooding on the Souris/Mouse River this year, North Dakota and Canada are working on harmonizing their cross-border small basins at the HUC14-16 scale (i.e., < 16 sq mi).
- USGS National Map Viewer, Version 2.0 (http://viewer.nationalmap.gov/viewer/)is out and GeoPDFs of imagery, scanned topographic maps, HUC, etc. layers can be downloaded, displayed with Adobe Reader and then edited or annotated with the TerraGo Toolbar plug-in.
- The USGS has an Emergency Operations center at EROS Sioux Falls, SD which hosts the Natural Hazards Support System home page (http://nhss.cr.usgs.gov/) and the Hazards Data Distribution System (http://hdds.usgs.gov/hdds2/). These resources can be activated by state emergency operations agencies and can provide public and private aerial and space imagery products thru http://eoportal.cr.usgs.gov/hdds2/
- University of North Dakota's International Space Station Ag Cam (ISSAC) is operational. It is a 10m resolution, 3-band, fast-response, multi-day target acquisition, variable side-angle camera that covers from 51.6° north to south latitude. It's website can be found at www.umac.org/sensors/issac/index.html
- ND Department of Emergency Services used geo-referenced imagery during the 2011 Souris/Mouse and Missouri River Floods. Houston Engineering produced inundation maps (www.nd.gov/des/ndelevationlookup/) for EM and Public support.
- Phase 3 of the Red River Basin Commission and International Water Institute's Red River Basin Decision Information Network (www.rrbdin.org/) is operational. It now hosts a NOAA-sponsored drought portal, a LIDAR viewer that can produce cross sections, and additions to the Fargo Flood Display Tool which will display inundation mapping for river points other then the Fargo-Moorhead floodway.

Automated Graphicast Project

By: Nick Fillo - WFO Wakefield, VA
Matthew Duplantis - WFO Shreveport, LA
B.J. Simpson – WFO Little Rock, AR
Parks Camp - WFO Tallahassee, FL

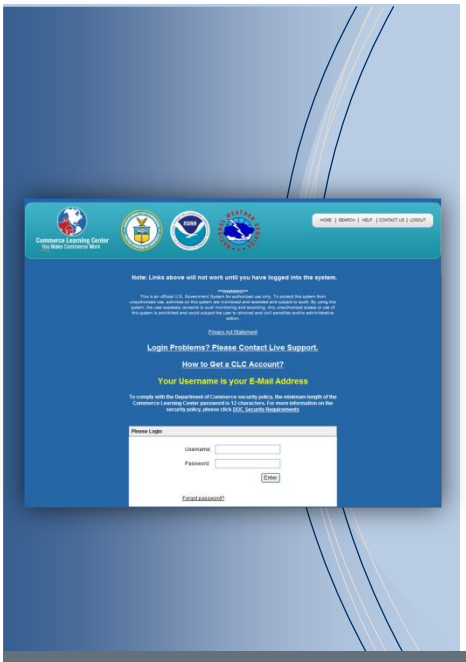
Through a set of scripts originally developed at WFO Shreveport by Nick Fillo and Matthew Duplantis; automated generation of graphicasts is now possible. The Southern Region GIS Team is now in the late stages of streamlining the process further with the goal of releasing locally customizable scripts to WFOs across the National Weather Service by late 2011 or early 2012.

The project utilizes a Graphical Forecast Editor (GFE) generated product similar to the Tabular State Forecast (SFT) product to provide the data for the scripts to ingest. The entire process can be automated, though some offices prefer user interaction for both quality control purposes and so that items such as cold fronts can be added to the maps. The flowchart below shows the general process by which the automated graphicasts are created.



As of November, five offices have already implemented the Automated Graphicast scripts with excellent reviews by forecast office staff. The graphicasts are not meant to substitute for hand-drawn graphicasts during periods of active weather, but are very useful in periods of quiet weather.

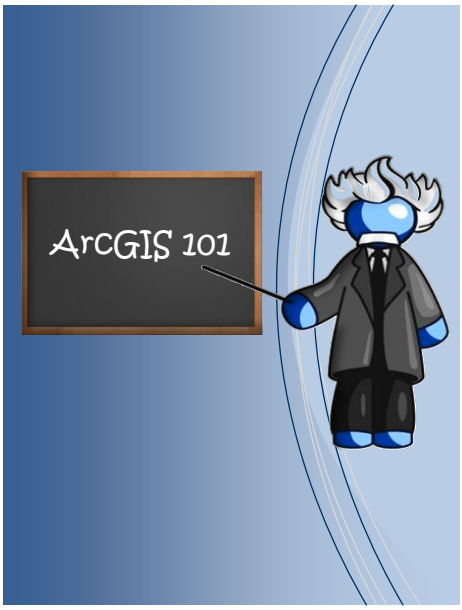
ArcGIS Training Courses Now Available on the LMS



A new opportunity for GIS training has become available on the Commerce Learning Center website. Geospatial Training Services have provided six professional quality training bundles…with more possibly being added at a later date. This training is comprised of various courses that range from teaching the basics of ArcGIS 10 for beginning users to polishing skills for those that are more advanced. National Weather Service employees have up to 2 years (September 2013) to complete this optional training. Please see the *ArcGIS Learning Center web page* for more details.

Below is an overview of the training modules that are currently available:
ArcGIS Desktop 101:
Everything you ever wanted to know about ArcGIS Desktop! This course is designed to teach you the fundamental concepts of using ArcGIS Desktop including ArcMap and ArcCatalog. (17 Modules) 40 hours

Working with Geodatabases and Linear Referencing:
This course is designed to teach students all the fundamentals of the Geodatabase; creating and managing the geodatabase, using domains, subtypes and topology to better manage your data, using images with the geodatabase, and using specialized editing tools to correct and clean data, and creating routes. (9 Modules) 16 hours



GIS Programming 101 for ArcGIS 10 - Mastering Python:
This course is designed to teach the fundamental programming constructs of the Python language and how it can be integrated with ArcGIS Desktop to automate geoprocessing tasks. (13 Modules) 40 hours

Beginners Guide ModelBuilder: Explore the use of Modelbuilder for constructing and executing simple and advanced geoprocessing workflows. 16 hours

Introduction to ArcGIS Server: ArcGIS Server provides an integrated solution for managing, disseminating and analysis of GIS data. Starting with the basic concepts of ArcGIS Server and moving to advanced web application development techniques with JavaScript, Flex, or Silverlight you will acquire the skills necessary for publishing your GIS content to users over the web or through traditional desktop means. (3 Modules) 16 hours

Introduction to ArcGIS Online: In this course you will be introduced to ArcGIS Online, learn how to search for existing maps, access basemaps, create maps, access online tasks, share contents and maps and use the community maps program. (7 Modules) 16 hours

GIS Day: Wednesday, November 16th

GIS Day is Wednesday, November 16th. To help promote GIS Day across the National Weather Service, a 2011 GIS Day webpage has been developed from the collaborative efforts of both Central and Southern Region GIS Teams. NWS offices can create a "Top News of the day" link directly to the page at http://www.crh.noaa.gov/ilx/?n=gisday or you can copy the source code and modify it for your local office. This is a great way to educate the public on how the National Weather Service utilizes the capabilities of GIS to enhance our products and services.

An outreach brochure, like the one portrayed on the right, is also available via a link on the NWS GIS Day webpage. You are encouraged to use this brochure as needed for outreach events and conferences to promote NWS GIS products and services available to the public!

On the 16th, A GIS Day webinar will be held for National Weather Service Offices from 9AM - Noon. A wide range of topics and projects pertaining to the latest GIS work being done across the agency will be presented. Your office can register for the meeting at https://www2.gotomeeting.com/register/148112794

For additional GIS Day information and resources, please check out the GIS Day webpage at…http://www.gisday.com/. You can also find more Info on their Facebook page at…http://www.facebook.com/gisday.

Please share your GIS Day activities, stories, and pictures with us! We will include them in the next edition of the NWS Geospatial Newsletter! You can email your articles submissions to darrin.hansing@noaa.gov.